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RE: *U.S. Patent Application Serial No.: 10/060,565*
Entitled: "METHOD AND APPARATUS FOR SIGHTING AND TARGETING A CONTROLLED SYSTEM FROM A COMMON THREE-DIMENSIONAL DATA SET"
Inventor(s): JOHN R. STEWART
Client Reference: VS-577

Sir:

Enclosed for filing in the above-referenced patent application is:

- (1) A Response to Office Action dated December 18, 2003;
- (2) A return postcard to acknowledge receipt of these materials. Please date stamp and mail this postcard.

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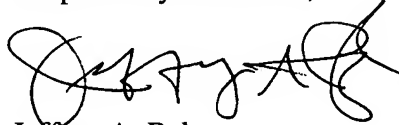
March 12, 2004

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Customer No. 23720

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Jeffrey A. Pyle", with a large, stylized initial "J" and "P".

Jeffrey A. Pyle

34,904

JAP/rgc

Encl:



PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:
JOHN R. STEWART

Serial No.: 10/060,565

Filed: JANUARY 30, 2002

For: METHOD AND APPARATUS FOR
SIGHTING AND TARGETING A
CONTROLLED SYSTEM FROM A
COMMON THREE-DIMENSIONAL
DATA SET

Group Art Unit: 3641

Examiner: STEPHEN JOHNSON

Atty. Dkt. No.: 2063.003600/JAP

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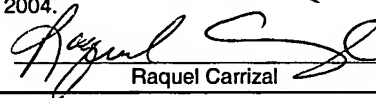
RESPONSE TO OFFICE ACTION DATED DECEMBER 18, 2003

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Raquel Carrizal

This paper is submitted in response to the Office Action dated December 18, 2003 for which the three-month date for response is March 18, 2004.

It is believed that no fee is due; however, should any fees under 37 C.F.R. §§ 1.16 to 1.21 be required for any reason, the Director is authorized to deduct said fees from Williams, Morgan & Amerson, P.C. Deposit Account No. 50-0786/2063.003600/JAP.

Reconsideration of the application is respectfully requested.

AMENDMENT

This listing of claims will replace all prior versions, and listing, of claims in the application.

- 1 1. (Original) A method, comprising:
2 sighting a position correlated to at least a subset of a three-dimensional data set
3 representing a field of view; and
4 targeting a controlled system to the position from the three-dimensional data set.
- 1 2. (Original) The method of claim 1, wherein the three-dimensional data comprises LADAR
2 data.
- 1 3. (Original) The method of claim 1, further comprising at least one of:
2 acquiring the three-dimensional data;
3 processing the three-dimensional data;
4 displaying a representation of the three-dimensional data;
5 displaying a projected target point after the controlled system is targeted; and
6 taking an action responsive to targeting the position.
- 1 4. (Original) The method of claim 3, wherein acquiring the three-dimensional data includes:
2 transmitting a plurality of LADAR pulses; and
3 receiving the LADAR pulses after they are reflected.
- 1 5. (Original) The method of claim 3, wherein processing the three-dimensional data
2 includes generating a three-dimensional image from the three-dimensional data.
- 1 6. (Original) The method of claim 5, wherein the three-dimensional image is the
2 representation.
- 1 7. (Original) The method of claim 5, wherein generating the three-dimensional image
2 includes:
3 pre-processing the three-dimensional data;
4 detecting a target represented by a subset of the three-dimensional data;

5 segmenting the subset from the remainder of the three-dimensional data;
6 extracting features of the target from the segmented data; and
7 classifying the segmented subset as including a particular kind of target based on the
8 extracted features.

1 8. (Original) The method of claim 1, wherein sighting the position indicating a portion of a
2 displayed image generated from the three-dimensional data.

1 9. (Original) The method of claim 8, wherein targeting the controlled system includes
2 aiming a weapon system at the sighted position.

1 10. (Original) The method of claim 1, wherein targeting the controlled system includes
2 aiming a weapon system at the sighted position.

1 11. (Original) An apparatus, comprising:
2 a program storage medium capable of storing a three-dimensional data set representing a
3 field of view;
4 a controller capable of generating a presentation of the three-dimensional data set;
5 a controller interface through which a position represented by at least a subset of the
6 three-dimensional data can be sighted and through which the position can be
7 targeted from the subset.

1 12. (Original) The apparatus of claim 11, wherein the program storage medium comprises a
2 magnetic program storage medium or an optical program storage medium.

1 13. (Original) The apparatus of claim 11, wherein the magnetic program storage medium
2 comprises a floppy disk, a zip disk, or a hard disk.

1 14. (Original) The apparatus of claim 12, wherein the optical program storage medium
2 comprises an optical disk.

1 15. (Original) The apparatus of claim 11, wherein the controller comprises a digital
2 processor.

1 16. (Original) The apparatus of claim 15, wherein the digital processor is a microprocessor or
2 a digital signal processor.

1 17. (Original) The apparatus of claim 11, wherein the controller interface includes a display.

1 18. (Original) The apparatus of claim 17, wherein the display is a helmet-mounted display or
2 a rack-mounted display.

1 19. (Original) The apparatus of claim 11, wherein the display includes a touch screen.

1 20. (Original) The apparatus of claim 17, wherein the controller interface includes at least
2 one peripheral input/output device.

1 21. (Original) A controlled system, comprising:
2 a data acquisition system capable of acquiring a three-dimensional data set representing a
3 field of view;
4 a sighting and targeting subsystem, including:
5 a program storage medium capable of storing the three-dimensional data set;
6 a controller capable of generating a presentation of the three-dimensional data set;
7 and
8 a controller interface through which a position represented by at least a subset of
9 the three-dimensional data can be sighted and through which the position
10 can be targeted from a presentation of the subset;
11 a control subsystem capable of implementing instructions from the sighting and targeting
12 subsystem.

1 22. (Original) The controlled system of claim 21, wherein the data acquisition system
2 includes a LADAR system.

1 23. (Original) The controlled system of claim 21, wherein the LADAR system comprises a
2 direct diode LADAR system.

1 24. (Original) The controlled system of claim 21, wherein the control subsystem comprises a
2 weapon pointing system.

1 25. (Original) A method, comprising:
2 acquiring a three-dimensional data set representing the content of a field of view;
3 generating a three-dimensional representation of the content from the three-dimensional
4 data set;
5 displaying the three-dimensional representation;
6 sighting a position within the field of view from the three-dimensional representation;
7 and
8 targeting the sighted position using the three-dimensional data set.

1 26. (Original) The method of claim 25, wherein acquiring the three-dimensional data set
2 includes:
3 transmitting a plurality of light pulses; and
4 receiving a plurality of the transmitted light pulses upon their reflection by an object in
5 the field of view.

1 27. (Original) The method of claim 26, further comprising:
2 extracting the three-dimensional data from the received light pulses; and
3 storing the received light pulses in a row column format.

1 28. (Original) The method of claim 25, wherein generating the three-dimensional
2 representation includes:
3 detecting a region of interest in the three-dimensional image;
4 segmenting a target in the region of interest from the three-dimensional image;
5 extracting features of the segmented target; and
6 classifying the target from the extracted features.

1 29. (Original) The method of claim 25, further comprising pre-processing the three-
2 dimensional data.

1 30. (Original) The method of claim 25, further comprising transmitting the generated three-
2 dimensional image to a remote location before displaying the three-dimensional image.

1 31. (Original) An apparatus, comprising:

2 means for sighting a position correlated to at least a subset of a three-dimensional data set
3 representing a field of view; and
4 means for targeting a controlled system to the position from the three-dimensional data
5 set.

1 32. (Original) The apparatus of claim 31, wherein the three-dimensional data comprises
2 LADAR data.

1 33. (Original) The apparatus of claim 31, further comprising at least one of:
2 means for acquiring the three-dimensional data;
3 means for processing the three-dimensional data;
4 means for displaying a representation of the three-dimensional data;
5 means for displaying a projected target point after the controlled system is targeted; and
6 means for taking an action responsive to targeting the position.

1 34. (Original) The apparatus of claim 31, wherein targeting the controlled system includes
2 aiming a weapon system at the sighted position.

1 35. (Original) An apparatus, comprising:
2 means for storing a three-dimensional data set representing a field of view;
3 means for generating a presentation of the three-dimensional data set;
4 means for sighting a position represented by at least a subset of the three-dimensional
5 data and for targeting the position from the subset.

1 36. (Original) The apparatus of claim 35, wherein the storing means comprises a magnetic
2 program storage medium or an optical program storage medium.

1 37. (Original) The apparatus of claim 35, wherein the generating means comprises a digital
2 processor.

1 38. (Original) The apparatus of claim 35, wherein the sighting and targeting means includes a
2 display.

1 39. (Original) The apparatus of claim 21, wherein the program storage medium comprises a
2 magnetic program storage medium or an optical program storage medium.

- 1 40. (Original) The apparatus of claim 21, wherein the magnetic program storage medium
2 comprises a floppy disk, a zip disk, or a hard disk.
- 1 41. (Original) The apparatus of claim 21, wherein the controller comprises a digital
2 processor.
- 1 42. (Original) The apparatus of claim 21, wherein the controller interface includes a display.
- 1 43. (Original) The apparatus of claim 21, wherein the display includes a touch screen.
- 1 44. (Original) The method of claim 25, wherein sighting the position indicating a portion of a
2 displayed image generated from the three-dimensional data.
- 1 45. (Original) The method of claim 25, wherein targeting the controlled system includes
2 aiming a weapon system at the sighted position.
- 1 46. (Canceled)